

What is claimed is:

1. An electrical circuit comprising an integrated circuit, an antenna and one or more electrical connections between the integrated circuit and the antenna, wherein at least the integrated circuit and the antenna are encapsulated within a capsule, and wherein
5 the capsule comprises a thermoplastic resin having a melting point of from 120°C to 250°C.
2. The electrical circuit according to Claim 1, wherein the capsule completely encapsulates the electrical circuit.
3. The electrical circuit according to Claim 1, wherein the capsule
10 encapsulates the electrical circuit only on one surface of the electrical circuit.
4. The electrical connection according to Claim 1, wherein the electrical circuit is encapsulated within the capsule such that at least one or more electrical connections are encapsulated by the thermoplastic resin.
5. The electrical connection according to Claim 1, wherein the antenna is a
15 coil.
6. Transponder comprising an electrical circuit containing at least one component suitable for interaction with an electromagnetic field encapsulated within a capsule, wherein the capsule comprises a thermoplastic resin having a melting point of from 120°C to 250°C, and wherein the electrical circuit is encapsulated by the
20 thermoplastic resin such that at least an integrated circuit and an antenna of the electrical circuit are encapsulated by the thermoplastic resin.
7. Transponder according to Claim 6, wherein the thermoplastic resin consists essentially of thermoplastic polyamide.
8. Transponder according to Claim 6, wherein at least part of a surface of the
25 capsule is covered with a cover layer of laminated film.
9. Transponder according to Claim 8, wherein the laminated film comprises a plastic.
10. Transponder according to Claim 9, wherein the plastic is polyvinyl chloride.
- 30 11. Transponder according to Claim 6, wherein the antenna is a coil.

12. Transponder according to Claim 6, wherein the electrical circuit further comprises one or more electrical connections connecting the integrated circuit in electrically conducting fashion with the antenna.

13. Transponder according to Claim 6, wherein the capsule further comprises at least one supporting element projecting from its surface.

14. Transponder according to Claim 6, wherein the capsule includes a material used as a mold during encapsulation with the thermoplastic resin.

15. Transponder according to Claim 6, wherein the transponder further comprises a sheath of injection molded resin surrounding the encapsulated electrical circuit.

16. Method of manufacturing a transponder comprising an electrical circuit containing at least one component suitable for interaction with an electromagnetic field encapsulated within a capsule, wherein the capsule comprises a thermoplastic resin having a melting point of from 120°C to 250°C, and wherein the electrical circuit is encapsulated by the thermoplastic resin within the capsule such that at least an integrated circuit and an antenna of the electrical circuit are encapsulated by the thermoplastic resin, comprising

placing at least one of the electrical circuits in a cavity of a mold, and
feeding the thermoplastic resin in molten form into the cavity to encapsulate the at least one electrical circuit and form the capsule, wherein the feeding is conducted at a temperature of from 120°C to 260°C and at a pressure of from 5 to 40 bars.

17. Method according to Claim 16, wherein the placing places a supporting surface of the electrical circuit against the mold, and wherein the feeding consists of forming a partially covered electrical circuit covered with thermoplastic resin at least on one surface.

18. Method according to Claim 16, wherein the placing places a supporting surface of the electrical circuit against the mold, wherein the feeding forms a partially covered electrical circuit covered with thermoplastic resin at least on one surface, and the method further comprises placing the partially covered electrical circuit in a cavity of a second mold such that the supporting surface is exposed to the cavity of the second mold, and filling the cavity of the second mold with the thermoplastic resin to form a fully covered electrical circuit.

19. Method according to Claim 16, wherein the placing includes a plurality of pins supporting the electrical circuit within the cavity of the mold.

20. Method according to Claim 19, wherein the method further comprises, following the feeding, removing the plurality of pins and subsequently filling the cavity
5 of the mold once more with the thermoplastic resin.

21. Method according to Claim 16, wherein the at least one electrical circuit comprises a plurality of electrical circuits that are encapsulated together so as to be held together by the thermoplastic resin.

22. Method according to Claim 21, wherein the encapsulation forms a plate in
10 which the plurality of electrical circuits are embedded, and the method further comprises stamping the transponder comprising at least one electrical circuit from the plate.

23. Method according to Claim 22, wherein the method further comprises forming a film cover layer on one or both sides of the plate before the transponder is stamped from the plate.

24. Method according to Claim 16, wherein the feeding is conducted at a
15 temperature of at most 230°C and at a pressure of at most 35 bars.

25. Method according to Claim 16, wherein the mold remains with the electrical circuit and forms at least a part of the capsule.

26. Method according to Claim 16, wherein the method further comprises
20 placing the transponder encapsulated in the thermoplastic resin in a cavity of an injection mold and subsequently injecting injection molding material into the cavity to form an injection molded part.

27. Method according to Claim 26, wherein the injecting is conducted at a temperature of from 180°C to 400°C and at a pressure of from 50 bars to 2,000 bars.

28. Injection molded part with transponder integrated therein made according
25 to the method of Claim 26.